JET Meeting Minutes
August 19, 2008

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Action Items

1. If you are interested in using AtlanticWave to reach SC08 please contact either Julio Ibarra <julio@fiu.edu> or Matt Siniscal <matt@maxgigapop.net>.
2. If you are interested in StarLight support for a demonstration at the early October GLIF meeting in Seattle, please contact Alan Verlo 710engineers@startap.net
3. Grant Miller will inform the JET of Heather Boyle's talk to the MAGIC Team on International R&E Networking.
4. Grant Miller will prepare a JET briefing to the LSN Annual Planning Meeting indicating new JET initiatives

5. If you have an interest in using DREN multicast beacons, please contact Phil Dykstra at: phil@sd.wareonearth.com

6. If you know of any agency programs in high performance distance education, please send a very brief description to Grant Miller <**miller@nitrd.gov**>

7.Greg Cole will post the URL for his talk on GLORIAD to the JET email list.

Proceedings

This meeting of the JET was chaired by Kevin Thompson of the NSF and Vince Dattoria of DOE.

JET Initiatives for LSN

The JET members discussed initiatives for recommendation to the LSN. Topics for continuing action by the JET in FY 09 include:

1. Status of IPv6 in the Federal agency deployments: Several R&E networks, led by DREN, deploy, use, debug, and enhance the capabilities of IPv6. Providing the status of IPv6 in the R&E network deployments and making available information on equipment and tools for IPv6 is useful and timely not only for the Federal agencies but for the commercial sector and other users as well. NANOG is increasingly interested in v6. Larger providers became interested in v6 a while ago and smaller providers are rapidly becoming interested. Backbones and GigaPoPs currently deploy v6. LANS and applications now need work. DREN, the v6 operators list and Internet2 track v6 capabilities. The JET could point to what these organizations are doing. DREN could take the lead in reporting on this initiative.
2. Trans-Oceanic International networks: Advanced applications are increasing collaborations on the international level. The LHC, the astronomy community, and the Earth Science community, in support of the IPCC, increasingly rely on international cooperation and the distribution of large amounts of data. The JET should track international networking for R&E networks and provide projections of future use (data transmission requirements) for international cooperative networking. Heather Boyles of Internet2 maintains an inventory of international networking cooperation and organizations interested in network cooperation.

AI: Grant Miller will inform the JET of Heather Boyle's talk to the MAGIC Team on International R&E Networking.

3. NOC to NOC communications: Provide a list of who you call when a problem is encountered. A list of phone numbers for alerts is a start. ASNs could be used for alerts. JET members suggested holding a side meeting at the next Joint Techs Meeting to consider a case study of an event and response. This could provide a basis for developing procedures and a telephone list or ASNs for NOC to NOC alerts.
4. Exchange of network performance monitoring among the R&E networks.

PerfSonar is rapidly becoming a standard measurement tool and is increasingly being deployed. OSG is making PerfSonar available to applications users and developers.

5. Trusted Internet Connections (TICs): The JET should continue to follow the requirements for TICs and how these requirements are applied to R&E networks. The JET should also track where TICs are located, what is their performance, and do they restrict science data flows?
6. Interoperability of circuit-based networks: The JET should track circuit-to-circuit interoperability during the regular JET meetings, much as IPv6 for Federal networks is tracked. The JET should monitor traffic over R&E networks using circuit connections. Internet2 is taking with the DIC group about challenges for circuit-based networks including technical challenges, business models, policies, and agreements. Issues include matching services across circuits, establishing protocols for end-to-end communications and provisioning.
   GLIF has been working extensively in this area and has a combined effort with the Open Grid Forum. There will be a Working Group meeting at the October 1-3 GLIF meeting in Seattle, Washington. Subsequent to this meeting OGF will be meeting to further develop standards for operational capabilities. The JET should monitor the ongoing work of the GLIF and OGF in circuit-based interoperability.

Discussion among the JET members identified that the JET should recommend issues 1. IPv6 status and 2. International R&E network cooperation to the LSN as focus areas for the JET in the upcoming year. The JET should also indicate that it will be tracking the additional issues on a continuing basis over the coming year.

AI: Grant Miller will prepare a JET briefing to the LSN Annual Planning Meeting indicating new JET initiatives

Network and Exchange Point Roundtable

DREN

DREN has a new vBNS node in El Paso. DREN is grooming its Southwestern networking to provide improved latency and performance. DREN is starting to plan for upgrading its backbone network to OC192 at its primary sites (MSRCs). The DREN multicast beacons could be opened up beyond the borders of DREN.

AI: If you have an interest in using DREN multicast beacons, please contact Phil Dykstra at: phil@sd.wareonearth.com

ESnet

Steve Cotter is joining ESnet August 29 as the new Department Head. ESnet is implementing new link for its Science Data Network (SDN) to Chicago, Washington, DC, Nashville, Denver and Seattle. New York will be implemented next. An Atlanta to Sunnyvale link completes the southern portion of the ESnet's SDN infrastructure. The northern and southern routes are both completed now and ESnet has an infrastructure of several interlinking rings. All circuits are in production or very near production. The

New York hardware upgrade is scheduled for next week and will greatly improve performance at Brookhaven National Laboratory in support of the LHC requirements. ESnet also has a diverse backup path to FermiLab now.

Internet2Net

The Seattle Internet2Net IP router is moving into the Pacific Northwest GigaPoP collocation space. A Ciena Core Director is also being located at PNWGP. Internet2Net is implementing commodity peering in New York through the Fiber Meet-me Room. The T640 router in Chicago is being upgraded to a T1600.

NISN

NISN is upgrading its backbone network to OC192. It is implementing multicast for NASA TV; codex is needed to multicast streams out. A codex is expected to be purchased during the next budget cycle and the codex is planned to be implemented at Goddard Space Flight Center.

NREN

NREN is migrating traffic to NISN shortly. The Ames NGIX has a white phone for ASN based NOC to NOC calls.

TransPAC

TransPAC is providing a DCN path to APAN. It will connect to Internet2Net in Los Angeles and be handed off as Ethernet packets. Initially it is via a static circuit. It is expected to have this connection operational for SC08. A connection to Pakistan was implemented last week. BGP is operational in one direction and operation in the other direction is expected next week. An OC12 link through the TANE router in Singapore is operational through Tokyo. It is funded by NSF and Pakistan. A TransPAC meeting was held last week in New Zealand.

Am Path

AmPath is currently focused on the connectivity in Brazil, moving their Cisco equipments to provide improved mapping of vLANs. They are supporting the High Energy Physics community in Brazil and the astronomy community in Chile. The projected date for completion of the move is early September..

Atlantic Wave

Atlantic Wave has a project with Florida Lambda Wave to extend Atlantic Wave to SC08. Atlantic Wave is working with Red CLARA to extend their network to MANLAN.

MANLAN

MANLAN is upgrading the code on its HDXc, implementing a Nortel based capability to control lambdas. Additional connectors to MANLAN include the United Arab Emirates in about one month.

USGS

USGS has experienced difficulty of its scientists with the performance of the USGS TICs. Some scientists are performaing their research at their home institutions to achieve btter network performance.

Exchange Points

StarLight

StarLight has a new DCN connection. They are supporting demonstrations at the GLIF Meeting, October 1-3 in Seattle, Washington. One GLIF demonstration will provide inter-domain provisioning.

College Park

NGIX-East is upgrading its Juniper 1600 cards over the next 4-6 weeks. They will test out the improved capabilities.

Meetings of interest

August 24, NISN User's Conference, Chicago, Illinois
September 28-30 Networking Research Challenges Workshop, Seattle, Washington
October 1-2 GLIF Meeting, Seattle, Washington
October 13-16, Internet2 Member Meeting, New Orleans, Louisiana
October 15-17: ARIN meeting in conjunction with NANOG, Los Angeles, California
November 15-21, SC08, Austin, Texas
December, 1st week: The Interworking Conference is being held in Miami Beach. Telcos and academic institutions will attend from the US, Latin American and Asian-Pacific communities: <www.interworking2008.org>

Networking Research Challenges Workshop

An invitation-only workshop on Networking Research Challenges is being held September 28-30 in Seattle, Washington in conjunction with the October 1-2 GLIF meeting there. Approximately 75 people have signed up for the meeting and about 100 total are expected to attend. Additional people may be invited from ESnet and other R&E networks.

IPv6 Status Page

Mark Prior is developing a description of the status of IPv6 on U.S. R&E networks and sites. This page may be found at: **www.mrp.net/IPv6_Survey.html**
Discussion among the JET members indicated that information should be provided by site rather than network to eliminate possible duplications of information when two different networks coordinate with a site.

High Performance Computing Distance Education

The House Committee on Science and Engineering has asked the NITRD agencies to identify distance education programs for high performance computing.

AI: If you know of any agency programs high performance distance education, please send a very brief description to Grant Miller **miller@nitrd.gov**

GLORIAD

Greg Cole provided a briefing on GLORIAD, a cooperative program for applications development and support across the Northern Hemisphere, including the US, Russia, China, Korea, Japan, Canada and others. A copy of his full briefing may be found at the JET Website at: **www.nitrd.gov**. GLORIAD is funded under the NSF IRNC program. 155 Mbps service was implemented in 2005 supporting science cooperation for many applications. Usage is at the level of 8000 active flows per second. Monitoring on GLORIAD is focused on projecting future usage using NetFlow. They just added a system for automated security alerts based on retransmits and capacity consumed. Security monitoring uses a hybrid approach using SNORT and BRO. GLORIAD uses a distributed virtual NOC Center. GLORIAD implements a distributed classroom. Outreach activities let people know what capabilities, resources and opportunities are available through GLORIAD.

Next steps for GLORIAD include expanding bandwidth and services and providing better access to underserved communities by 2010.

AI: Greg Cole will post the URL for his talk on GLORIAD to the JET email list.

Cisco's C-Wave Update

C-Wave provides high-performance facilities for operational R&E networks providing network control at multiple layers. It uses NRL, Internet2, and Regional Network resources. Their primary challenge is how to connect researchers to the unique resources in a reasonable and flexible manner. C-Wave provides access to 10G Waves at Layer 1, Point-to-point (p2p). It provides a switched network with 10 GE backbone links and a flexible architecture with an MPLS backbone. Use of C-Wave (qualification for usage) is based on project requirements, research merit, and partnership opportunities. C-Wave does not provide permanent deployments; it is not highly connected; it is not designed for production environments; and does not support critical non-stop applications. C-Wave will be supporting SC08. Capabilities include protocols (ISIS, MPLS, iBGP), services (EoMPLS-p2p, statically routed IP, L3 VPN, and switched Layer 2. Preferred connections are GE or 10 GE 802.1q Trunk. Projects and users include CineGrid, Active Sector, TransLight, NASA Research, a range of demonstrations, and many other applications. For the full briefing, please see the JET Web site at: www.nitrd.gov.

Future JET Meetings

September 16, 11:00-2:00, NSF, Room 1150
October 21, 11:00-2:00, NSF, Room 1150
November 19 1:00-4:00 CST, Austin Convention Center, Room 8A
(In conjunction with SC08)